

Appln No. 10/623,528. Filed 07/22/2003 Response to Final Action of 04/18 /2006

Amendment to the Specification

Please replace paragraphs [0022] and [0028] with the amended versions below:-

[0022] In accordance with the invention there is provided an orthodontic device for use with orthodontic arch wires comprising:

a device body having labial, lingual, gingival, occlusal, mesial and distal surface portions, the body having therein a mesial-distal extending arch wire receiving slot having one mesial distal extending side open to a device body surface portion to permit insertion of an arch wire into the slot and its removal therefrom;

a pivot member mounted by the device body and establishing a mesial-distal extending pivot axis; and

a shutter member mounted by the pivot member for pivoting movement about the pivot axis between a slot open position in which the open slot side is open, and a slot closed position in which the shutter member closes the open slot side to retain an arch wire in the slot;

wherein the shutter member comprises:

a pivot portion mounted by the pivot member for the pivoting movement of the shutter member; and

a slot closure portion movable with the pivot portion, extending mesially distally with respect to the device body, and in the slot closure position closing the slot open side; and

an attitude controlling spring member constituted by ~~a flexible end~~ an integral extension of the slot closure portion more flexible than the slot closure portion and further from the pivot portion, the extension being of recurved cross section in an occlusal, gingival, labial, lingual plane to have two arms, a first of which is integral with the slot closure portion and the second of which is integral with the first arm;

wherein with the shutter member in slot closed position a free end portion of the second arm ~~spring member~~ extends into the arch wire receiving slot for engagement in a mesial-distal extending plane with an arch wire in the slot, such engagement urging the arch wire into engagement with the respective slot walls.

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[0028] Means for retaining the arch wire in the slot, and releasing it when required, consist of a shutter member, indicated generally by arrow 36, that is mounted by a pivot member in a centrally disposed recess 38 opening to the labial and occlusal surface portions 10 and 16. In this embodiment the pivot member consists of a pair of coaxial mesial-distal extending pivot pins ~~38~~ pins 40 that pass through the shutter member and the bracket body, so that the member is movable about a common pivot axis 42 of the pins between a slot closed position, as shown in Figures 1 and 3, in which the shutter closes the open lingual slot side, and a slot open position, as shown in Figure 4, in which the open lingual slot side is unobstructed. The facing ends of the pins are spaced from one another to provide a space between them whose function will be explained below. In this embodiment the pivot member is disposed in the body closer to the labial end than to the lingual end. The provision of the recess 38 in the bracket body member results in two parallel wing members 44 with parallel facing mesial and distal walls, the mesial-distal dimension between the two walls being such that the shutter member 36 has just enough clearance, but without any appreciable play, to move freely therein in its movement between slot open and closed positions. The pivot pins are of circular cross section and are engaged tightly in corresponding circular cross section bores 46 in the wing members; once engaged in these bores they are held rigidly against rotation, for example by laser spot welding their ends to the bracket body by spot welds 48, as shown in Figures 1, 5 and 7. The shutter member consists of a pivot portion 50 that is always within the recess 38, and through which the pivot pins 38 extend, and a slot closure portion 52, the latter being in this embodiment integral with the pivot portion, the shutter member having been machined from a single block of metal. In this embodiment the mesial-distal dimension of the slot closure portion is the same as that of the pivot portion. In the slot closed position of the shutter member surface 54 of the slot closure portion butts against archwire slot surface 30 to establish the fully closed position, while surface 56 closes the open lingual side of the arch wire slot, and surface 58 registers and aligns with slot surface 32 to form a continuation of that surface.